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SYNOPSIS OF NORTH-AMERICAN INVERTEBRATES.

XII. THE TREMATODES.

PART II.—THE ASPIDOCOTYLEA AND THE MALACOCOTYLEA, OR DIGENETIC FORMS (continued).

H. S. PRATT.

KEY TO THE SPECIES OF NORTH-AMERICAN ASPIDOCOTYLEA AND MALACOCOTYLEA, SO FAR AS DESCRIBED.

GENUS STICHOCOTYLE.

Larva found in *Nephrops norvegicus* and *Homarus americanus*: length 3–7 mm., with 7–22 suckers. Adult in *Raja clavata*: length 17–105 mm., with 20–27 suckers *S. nephropis* Cunn. (Fig. 2) (62, 68)

GENUS COTYLASPI.

Body white or pinkish: in various species of *Unio* and *Anodonta*
C. insignis Leidy (Fig. 5) (22, 23, 73, 16, 17)

GENUS COTYLOGASTER.

Body elongate; anterior portion of body terminated by a five-lobed disk surrounding the mouth; sucking disk with 132–144 depressions; marginal sense organs present; from dorsal surface near posterior end rises a broad conical elevation, at base of which is excretory pore; length 8 mm.: in gut of sheephead in Minnesota *C. occidentalis* Nick. (66)

GENUS ASPIDOGASTER.

Number of depressions about 64; sucking disk elliptical, covering two-thirds of the body: in pericardium, liver, and kidney of *Unio* and *Anodonta*
A. conchicola v. Baer (Fig. 7) (20, 22, 23, 16, 17, 78)

GENUS PARAMPHISTOMUM.

- a_1 . Body ovoid or elliptical.
 b_1 . Acetabulum large; testes 2, lobate, in median line; 12 mm. long,
5 mm. wide: in intestine of *Manatus*
P. fabaceum Dies. (32)

- b_2 . Acetabulum emarginate; 4–24 mm. long, 2–12 mm. wide: in intestine of terrapin *P. grande* Dies. (29)
- a_2 . Body conical or subconical.
- b_1 . Acetabulum large and subterminal; testes lobate, median: in stomach of sheep and cattle . . . *P. cervi* Zed. (Fig. 9) (85, 87)
- b_2 . Acetabulum in ventral surface not quite at posterior end, emarginate; genital pore near anterior end often in a papilla or retracted in a depression; body triangular in cross section: in the muskrat
P. subtriquetrum R. (45)

GENUS DIPLODISCUS.

Acetabulum large; body tapering anteriorly: in intestine of frogs

D. subclavatus R. (Fig. 12) (21, 80, 79, 41)

GENUS FASCIOLA.

- a_1 . In mammals; worms of large size.
- b_1 . Worms 18–50 mm. in length, 4–13 mm. in breadth; anterior end distinctly set off from remainder of body; broadest part of worm in front of its middle: in cattle, sheep, deer, man, *et al.*
F. hepatica L. (Fig. 13) (83, 85, 93)
- b_2 . Worms 20–100 mm. long, 11–26 mm. broad; anterior end indistinctly set off; broadest part of worm back of its middle; body flesh colored: in cattle . . . *Dist. hepaticum* Curtice (83)
Dist. carnosum Hassall (83)
Dist. americanum Hassell (83)
Dist. texicanum Francis (83)
Dist. crassum Leidy (83)
= *F. magna* Bassi (83, 85, 93)
- a_2 . In birds; worms not of large size; body piriform; 14 mm. long: in lungs of kingfisher *Dist. trapezium* Leidy (32, 81)
= *F. reticulata* R. Wr. (97, 44)

GENUS FASCIOLOPSIS.

Body nearly circular; 15 mm. long, 12 mm. wide; in liver of an Indian elephant (in Boston) *F. jacksoni* Cob. (Fig. 14) (83, 44)

GENUS PLEORCHIS.

Body linguiform; $14\frac{1}{2}$ or 15 pairs of testes present; 5.25 mm. long, 1.5 mm. wide: in lung of a turtle (*Sternotherus odoratus*)
P. mollis (Leidy) S. et H. (82)

GENUS PARAGONIMUS.

Body red in life; suckers small; ovary to left of acetabulum; 8–20 mm. long, 4–8 mm. wide: in lungs of cat and dog, *et al.*, and possibly encysted in the muscles of swine (*Agamodistomum sp.*) in a larval condition

P. westermanni Kerb. (Fig. 17) (93, 87)

GENUS OPISTHORCHIS

- a_1 . Body not spinose, lanceolate; testes not at extreme hinder end of body; 10–21 mm. long, 1–2.5 mm. wide: in the liver of cats and the cayote . . . *O. pseudofelineus* Ward (Fig. 30) (94, 81, 93)
- a_2 . Body spinose, very elongate; testes at extreme hinder end of body; 12–29 mm. long, 1 mm. wide: in liver of crow
O. spesiosus S. et H. (81, 84)

GENUS METORCHIS.

- Uterus massed around acetabulum; body linguiform; testes large and lobate; 6 mm. long, 2 mm. wide: in cats
M. complexus S. et H. (Fig. 32) (81)

GENUS TELORCHIS.

- Yolk glands extend in front of acetabulum; intestinal cœca extend beyond testes; 3.15 mm. long: in intestine of painted turtle
T. angustus Stafford (79)

GENUS DEROPRISTIS.

- Anterior end usually attenuated and covered by large, coarse spines, remainder of body by short spines; acetabulum much larger than oral suckers; 3–6 mm. long, 1.2 mm. wide: in the intestine of *Phycis tenuis*
D. hispidus Abil. (40, 70)

GENUS ECHINOSTOMA.

- a_1 . Number of oral spines usually 37; 18 mm. long, 1.5 mm. wide: in intestine of muskrat . . . *E. echinatum* Zed. (Fig. 25) (28)
- a_2 . Number of oral spines 45; 2.5 mm. long: in intestine of *Ædemia americana* . . . *E. flexum* Linton (36)
- a_3 . Number of oral spines 27; body elliptical; 8 mm. long: in intestine of *Botaurus minor* . . . *E. aspersum* R. Wr. (97)

GENUS STEPHANOCHASMUS.

- a_1 . Number of oral spines 32, 16 being in each row; body cylindrical anteriorly, globose posteriorly; 2.5–3 mm. long: in capsules in peritoneum of filefish (*Alutera schoepfi*) et al.
S. valdeniflatus Stoss. (38, 40)
- a_2 . Number of oral spines 42, 21 being in each row; body slender or lanceolate; pharynx very large; prepharynx long; intestinal cœca wide; 3 mm. long, 0.6 mm. wide: in rectum of striped bass (*Roccus lineatus*) . . . *S. tenuis* Linton (38, 40)
- a_3 . Body elongate; pharynx large; prepharynx long; 3.15–4.5 mm. long, 0.5 mm. wide: in peritoneum of white perch (*Morone americana*)
S. tenuis tenuissimus Linton (38)

- α_4 . Body elongate; 4.5 mm. long: in intestine of *Cottus scorpius*
S. sobrinus Lev. (33)
- α_5 . Number of oral spines about 48, 24 being in each row; body broad, lanceolate; testes and ovary in contact with each other; 1.14–1.85 mm. long, 0.37–0.64 mm. wide: in intestine of flounder (*Paralichthys dentatus*) *S. dentatus* Linton (39, 40)

GENUS RHOPALIAS.

Body elongate, tapering towards the hinder end; tentacles long, being up to 1.3 mm. in length; prepharynx and œsophagus of about same length; 6–9 mm. long, 0.8–1.16 mm. wide: in intestine and stomach of opossum (*Didelphys virginiana*) *R. coronatus* R. (80, 7)

SUBFAMILY PSILOSTOMINÆ.

- α_1 . Body subcylindrical, anterior end cylindrical and very contractile, without spines; acetabulum larger than oral sucker; prepharynx, pharynx, and œsophagus present; yolk glands very voluminous and extend from acetabulum to posterior end, filling the body behind the testes, but not in front of acetabulum; 0.88–1.42 mm. long, 0.25 mm. wide: in intestine of hake (*Merluccius bilinearis*) *et al.*
Distomum vitellosum Linton (39, 40)
- α_2 . Body elliptical, depressed, anterior end cylindrical, contractile, without spines; yolk glands extend from pharynx in front of acetabulum to hinder end, usually not overlapping the intestinal cœca; prepharynx, pharynx, and œsophagus present; 1.6–2.74 mm. long, 0.57 mm. wide: in intestine of flounder (*Paralichthys dentatus*)
Distomum pudens Linton (39, 40)
- α_3 . Body elongate, linear, spinose; yolk glands extend from acetabulum to hinder end of body; prepharynx, pharynx, and short œsophagus present; 3 mm. long, 0.55 mm. wide: in intestine of cod
Distomum racion (Cob.) Linton (38)
- α_4 . Body elliptical or piriform, covered with flat scalelike spines; acetabulum of same size as oral sucker in middle of body; ovary to right of and near acetabulum; yolk glands voluminous, extending from pharynx in front of acetabulum to hinder end of body, filling it back of testes; prepharynx, pharynx, and œsophagus present; 0.26–0.36 mm. long, 0.12–0.18 mm. wide: in pyloric cœca of rudder fish (*Palinurichthys perciformis*) *et al.*
Distomum pyriforme Linton (39, 40)
- α_5 . Body elliptical; acetabulum larger than oral sucker; anterior dorsal surface papillose; prepharynx, pharynx, and œsophagus present; yolk glands voluminous, occupying hinder half of body; 3.10 mm. long, 0.86 mm. wide: in intestine of filefish (*Alutera schoepfii*)
Distomum pallens (R.) Linton (38, 40)

- a_6 . Body elongate, without spines; acetabulum prominent, larger than oral sucker; yolk glands voluminous, back of acetabulum; 18 mm. long, 0.34 mm. wide: in intestine of tomcod (*Microgadus tomcod*)
Distomum simplex (R.) Linton (38, 40, 33)
- a_7 . Body elliptical, spiny; a pair of groups of ocelli near mouth; acetabulum of same size as oral sucker; testes in oblique plane; prepharynx, pharynx, and œsophagus present; yolk glands voluminous, filling body back of acetabulum; 2–2.5 mm. long: in pyloric cœca of *Cottus scorpius* *Distomum oculatum* Lev. (33)
- a_8 . Body elongate, without spines, anteriorly cylindrical, posteriorly depressed; acetabulum larger than oral sucker, near middle of body; prepharynx, pharynx, and œsophagus present; testes and ovary in median line, close together; yolk glands voluminous, extending from acetabulum to hinder end; 1.78 mm. long, 0.33 mm. wide: in intestine of *Mola mola* *Distomum fragile* Linton (39, 40)
- a_9 . Body elongate, linguiform; prepharynx, pharynx, and œsophagus present; yolk glands voluminous, filling body back of testes; 4.35 mm. long, 1 mm. wide: in intestine of *Pseudopleuronectes americanus* *Distomum globiporum* (R.) Linton (40)

GENUS CREPIDASTOMUM.

- a_1 . Papillæ small; body elliptical; acetabulum smaller than oral sucker; pharynx and short œsophagus present; yolk glands voluminous, extending from pharynx to hinder end of body and overlapping intestinal cœca; 1.5–4 mm. long, 0.5–1.5 mm. wide: in rectum of *Salmo* *C. laureatum* (Zed.) Linton (37)
- a_2 . Papillæ large; body linear, tapering towards hinder end; oral sucker larger than acetabulum, but both large; œsophagus absent; yolk glands extend entire length of body; 1.7–2.2 mm. long, 0.6 mm. wide: in intestine of lake sturgeon (*Acipenser rubicundus*)
C. auriculatum (Wedl) Linton (38)

GENUS AZYGIA.

Body subcylindrical, light flesh color, posterior rounded. Ventral acetabulum $\frac{3}{4}$ line behind oral, $\frac{1}{3}$ line in diameter. Oral acetabulum $\frac{1}{4}$ line. Length 8 lines; breadth posterior $\frac{1}{2}$ line, anterior $\frac{1}{3}$ line. Genital aperture before acetabulum: in stomach of *Esox* . *A. tereticollis* (R.) Leidy (21)

GENUS RENIFER.

- a_1 . Body elliptical; genital pore near left edge of body; 3–4.2 mm. long, 1.1–1.6 mm. wide: in mouth of *Heterodon platyrhinus*
R. ellipticus Pratt (Fig. 53) (77)
- a_2 . Body elongate; genital pore near median line, but a little to left of it; 3 mm. long, 0.68 mm. wide: in mouth of *Heterodon platyrhinus*
R. elongatus Pratt (77)

- a_3 . Body broad, piriform; genital pore near median line; 3-4 mm. long; 1.5-2 mm. wide: in lung of *Tropidonotus sipedon*
R. variabilis (Leidy) Lühe (21, 53, 77)

SUBFAMILY RENIFERINÆ.

- a_1 . Body elliptical; acetabulum smaller than oral sucker; testes small, spherical, in same transverse plane; ovary small, spherical, all three being near acetabulum in center of body; genital pore median, in front of acetabulum; 2.8 mm. long: in intestine of frog
Distomum quietum Stafford (79)
- a_2 . Body elongate, linear; acetabulum near anterior end; genital pore in front of it; testes spherical, in oblique plane, near middle of body; uterus voluminous, filling hinder part of body; yolk glands between testes and acetabulum; 6 mm. long: in ureter and kidney of *Boa constrictor* *Distomum horridum* Leidy (18, 21)
- a_3 . Body elliptical, without spines; acetabulum near middle of body; genital pore close to oral sucker; testes immediately behind acetabulum; 1.8-3 mm. long, 0.8-1 mm. wide: in mouth of *Tropidonotus sipedon*
Distomum aniorum Leidy (32)
- a_4 . Body elliptical; testes ovoid, in same transverse plane; ovary immediately behind acetabulum, which is larger than oral sucker and in middle of body; excretory vesicle wide and long; 3 mm. long: in intestine of *Cottus scorpius* . . . *Distomum furcigerum* Olss. (33)

SUBFAMILY PLAGIORCHINÆ.

Body elongate, with minute spines; uterus very voluminous; yolk glands a number of roundish masses distributed laterally along the middle region of the body; 2.8-5.5 mm. long, 0.6-1.12 mm. wide: in intestine of *Tylosurus caribæus* *Distomum nitens* Linton (38)

GENUS BUNODERA.

Intermediate host the crayfish (*Cambarus*), in which it is found in cysts in ovary and other organs; 1 mm. long

B. nodulosa Zed. (Fig. 45) (98, 35)

GENUS HÆMATOLÆCHUS.

Acetabulum very small: in lung of frogs

H. variegatus R. (Fig. 55) (20, 21, 97, 79)

GENUS OSTIOLUM.

Acetabulum minute; body elongate; median limb of excretory vesicle very long; 7-11 mm. long, 1.5 mm. wide: in frogs

O. formosum Pratt (Fig. 56) (77)

GENUS GORGODERA.

- a_1 . In urinary bladder of frogs and salamanders; number of testes, 9; form of yolk gland, veriform

G. cygnoides Zed. (Fig. 62) (20, 21, 13, 22, 44)

- a_2 . Number of testes, 9; yolk glands deeply lobate, in form of a rosette; ovary lobate; 4.6 mm. long: in urinary bladder of *Rana catesbiana*,
R. clamitans, *R. virescens* *G. amplicava* Lss. (2, 44)

- a_3 . Number of testes, 2; ovary veriform; yolk glands elongate and not lobate masses; 10 mm. long: in bladder of *Rana catesbiana*,
R. clamitans, *R. virescens* *G. simplex* Lss. (2, 44)

GENUS MICROPHALLUS.

Body elliptical; œsophagus very long, intestinal cœca very short; 1.7 mm. long, 1 mm. wide: in intestine of *Amia calva et al.*; intermediate host *Cambarus propinquus* *M. opacus* Ward (Fig. 75) (92, 94, 74)

GENUS LEVINSENELLA.

Body elliptical; œsophagus very long; yolk glands consist of several distinct bodies; 0.5 mm. long: in intestine of *Somateria mollissima*

L. pygmaea Lev. (Fig. 71) (33, 15, 94)

GENUS CYMATOCARPUS.

Body elliptical; intestinal cœca extend about to acetabulum; testes in oblique plane; 4 mm. long: in intestine of newt

C. hospitalis Stafford (79)

GENUS BRANDESIA.

Body elliptical; acetabulum in hinder part; genital pore on left side in anterior half; intestinal cœca short and wide; ovary lobate between them; testes in nearly same transverse plane in hinder half of body; 2.5 mm. long, 1.75 mm. wide: in capsules in pylorus of frog . . . *B. arcana* Nick. (64)

GENUS PLEUROGENES.

Body circular; 3-4 mm. long: in cysts in liver of bullfrog

P. medians (Olss.) Stafford (79)

GENUS GYMNOBALLUS.

Body elliptical; excretory crura extending to pharynx; 0.5 mm. long: in intestine of *Somateria mollissima* *G. somateriae* Lev. (33, 69)

GENUS CEPHALOGONIMUS.

Body elliptical; testes and ovary very near the acetabulum; œsophagus very short; yolk glands extend in front of acetabulum; excretory vesicle a

rounded sac into which radial canals extend; 2 mm. long: in intestine of soft-shell turtles (*Aspidonectes* and *Amyda*) . *C. vesicaudus* Nick. (65)

GENUS PROSTHOGONIMUS.

Body elliptical; acetabulum larger than oral sucker; 7 mm. long, 2.8 mm. wide: in the white of hen's egg, also in *Buteo lineatus* and *Corvus americanus* *P. ovatus* R. (Fig. 61) (34, 80)

GENUS DICROCELUM.

Body elongate, lanceolate; suckers near together; testes lobate, close behind acetabulum; 4-10 mm. long, 1-2.5 mm. wide. "Stated to be frequent in sheep in several western states" (Leidy). "Apparently not in North America" (Stiles and Hassall): in cattle, sheep, man, etc.

D. lanceatum S. et H. (Fig. 82) (21, 84, 85)

GENUS LYPEROSTOMUM.

In *Corvus americanus* *L. plesiosomum* v. Linst. (80)

GENUS HEMIURUS.

α_1 . Body cylindrical; appendix from a third the length to twice the length of the body; acetabulum much larger than oral sucker; testes not near acetabulum; yolk glands compact or slightly lobate; 0.5-6 mm. long: in stomach and pyloric cæca of marine fishes; intermediate host, copepods *D. pelagicum* Stafford (78)

= *H. appendiculatus* R. (Fig. 90) (39, 33, 55, 76, 24)

α_2 . Body fusiform; appendix about a third the length of body; acetabulum larger than oral sucker; testes close to acetabulum; 1.5-3.5 mm. long: in *Macrourus bairdii* *H. lævis* Linton (39, 55)

α_3 . Body slender, cylindrical; appendix about a third the length of body; acetabulum larger than oral sucker; testes distant from acetabulum; yolk glands lobate; 5.12-5.4 mm. long, 0.75-1 mm. wide: in stomach of *Remora remora* *H. monticelli* Linton (39)

α_4 . Body slender; appendix about a fourth the length of body; 3.2 mm. long, 0.42 mm. wide: in intestine of *Pomatomus saltatrix*

H. ocreatus (Mol.) Linton (39, 55)

GENUS LECITHOCLADIUM.

α_1 . Body slender; appendix long; 8-15 mm. long, 0.7 mm. wide: in *Coryphæna hippurus et al.* . . . *L. tornatum* (R.) Linton (38, 40, 55)

α_2 . Body slender; appendix long and slender; acetabulum of same size as oral sucker; oesophagus wanting; testes just behind vesicula seminalis; the tubular yolk glands extending into appendix; 10 mm. long, 1.14 mm. wide, length of appendix, 3.6 mm.: in butterfish (*Rhombus triacanthus*) *L. gulosum* Linton (40, 55)

GENUS LECITHOCHIRIUM.

Body cylindrical; 2-6 mm. long: in stomach of *Anguilla chrysypa*
L. grandiporum (R.) Linton (38, 55)

GENUS LECITHASTER.

Body fusiform; testes immediately behind acetabulum; 1-1.5 mm. long:
 in intestine of *Cottus scorpius* *Dist. mollissimum* Lev. (33)
 = *L. bothryophorus* Olss. (Fig. 93) (44, 55)

GENUS PRONOPYGE.

Body elongated, elliptical, flattened; 2-3 mm. long: in stomach of
Trichinous lepturus . . . *Dist. gastrocolum* Leidy (32)
 = *P. ocreata* Mol. et R. (Fig. 92) (81, 55)

GENUS DEROGENES.

Body elongate; acetabulum very large, in middle of body; testes close
 to acetabulum; 2 mm. long: in stomach of *Cottus scorpius et al.*
D. varicus O. F. Mül. (33, 52)

GENUS PROGONUS.

Body elliptical; acetabulum very large, in middle of body; 2 mm. long:
 in stomach of *Cottus scorpius et al.* . . . *P. mülleri* Lev. (Fig. 84) (33)

GENUS HALIPEGUS.

Body elongated; acetabulum larger than oral sucker, in center of body;
 10 mm. long: in Eustachian recesses and mouth of frog
H. ovocaudatus Vul. (Fig. 87) (63, 79, 53)

GENUS ACCACÆLIUM.

- α_1 . Body cylindrical, "dorsal surface and lateral margins armed with
 spheroidal tuberculate spines"; "twenty flat spines, more or less,
 on the inner margin of the oral sucker"; 8 mm. long, 0.72 mm.
 wide: host? *A. contortum* (R.) Linton (Fig. 80) (38)
- α_2 . Body cylindrical and slender; acetabulum larger than oral sucker and
 on a long peduncle; testes near center of body; no spines present;
 yolk glands "in slender, threadlike folds, centrally situated"; 35 mm.
 long, 1.12 mm. wide: in intestine of *Mola mola*
A. nigroflavum (R.) Linton (38, 39)
- α_3 . Body cylindrical, without spines; acetabulum twice as large as oral
 sucker and pedunculate; 14 mm. long, 1.7 mm. wide: in intestine of
Mola mola *A. macrocotyle* (Dies.) Linton (38, 39, 40)
- α_4 . Body cylindrical, slender; acetabulum pedunculate, "consisting of four
 foliate flaps"; 6-8 suckerlike structures in mid-dorsal line at anterior
 end of body; 12 mm. long, 1.28 mm. wide: in intestine of *Mola*
mola *A. foliatum* Linton (38)

ALLIED TO GENUS ACCACÆLIUM.

"Body cylindrical, narrowest in fore part and obtuse behind; ventral bothria larger than mouth and projecting in advance in an extent equal to the body; skin smooth and transparent; yellow intestines and white and brown genitals shining through"; 20-45 mm. long, 0.5-1.5 mm. wide: in intestine of *Mola rotunda* *Distomum pedocotyle* Leidy (31)

GENUS CLINOSTOMUM.

Body elongate; intestine with short side projections; yolk glands fill body back of acetabulum; cirrus sac before testes; 6-10 mm. long, 1-2 mm. wide: in mouth of *Ardea herodias et al.*; as young form in cysts in *Lepomis auritus et al.*

- C. heterostomum* (R.) R. Wr. et MacCallum (97, 56, 6)
Dist. gracile (Dies.) Linton (38, 6)
Dist. aquilæ Leidy (27, 81, 6, 85)
C. gracile Leidy (21, 81, 6)
Dist. galactosomum Leidy (30, 56, 6)
 = *C. marginatum* R. (Fig. 101) (6)

ALLIED TO GENUS CLINOSTOMUM.

"Body elongated, elliptical, moderately wider and thicker posteriorly, unarmed." "Mouth subterminal and enclosed with a reniform lip, succeeded by a linear annulus. Acetabulum large, at anterior fourth of body." "Genital orifice at posterior fourth of body." Length 15-20 mm., breadth 3 mm.: in mouth of Alligator *Distoma oricola* Leidy (25)

DISTOMIDS OF UNCERTAIN LOCATION IN THE SYSTEM.

PARASITIC IN MAMMALS.

Body elliptical and spinose; acetabulum in anterior half of body; genital pore halfway between it and posterior end of body; pharynx, short œsophagus, and long intestinal cœca present; testes large, obliquely behind one another in hinder part of body; ovary to right of them; 0.65-1.2 mm. long, 0.35-0.64 mm. wide: in intestine of *Lepus*

Distomum tricolor S. et H. (82)

PARASITIC IN REPTILES.

Body elongate; œsophagus wanting; testes obliquely behind one another in middle of body; ovary near acetabulum at anterior fourth of body; uterus between testes and ovary; yolk glands behind testes; 6 mm. long: in intestine of snapping turtle . . . *Distomum chelydræ* Stafford (79)

PARASITIC IN AMPHIBIANS.

Encapsuled under skin of *Siren lacertina* *Distomum sirenis* Vail. (90)

Body elliptical; intestinal cœca short, reaching to acetabulum; excretory vesicle large, the crura reaching to acetabulum; 0.7 mm. long, 0.45 mm. wide: in thoracic cavity of grass frog and encysted in anterior part of bullfrog *Distomum tetracystis* (Gal.) Stafford (79)

Body whitish, oblong, sublinear, narrowed anteriorly; oral sucker larger than acetabulum; 3 mm. long, 0.5 mm. wide: in *Rana halecina*

Distomum retusum (Duj.) Leidy (20, 21)

PARASITIC IN FISH.

Body elongate; suckers near each other, acetabulum somewhat pedunculate; genital pore in front of latter; 15 lines to 3 inches long, $\frac{3}{4}$ line wide: in mouth of *Esox* *Distomum longum* Leidy (20)

"Body long and narrow, band-like, with ventral disk at anterior fourth; smooth." "Ventral acetabulum about the width of body; oral disk smaller"; 8 mm. long, 0.87 mm. wide: in mouth, throat, and gills of sand pike (*Saurus fawcensis*) *Distomum ischnum* Leidy (32)

"Body flat, elongated elliptical; echinated between oral and ventral acetabula, which are equal, and the latter one is hemispherical and sessile. Length $2\frac{1}{2}$ to 3 lines, breadth 3-5ths to 4-5ths of a line." In intestine of *Leiostomus obliquus* *Distomum incivile* Leidy (21)

"Body ovoid, anteriorly compressed, conical and incurved, posteriorly robust and obtuse." "Acetabulum much larger than mouth." "Genital pore a little in advance and to left of acetabulum, provided with prominent circular lip"; length $1-2\frac{1}{2}$ lines; breadth $\frac{1}{2}-1$ line: in gall bladder of unknown fish *Distomum biliosum* Leidy (23)

Body elongate, oval; 20 mm. long, 6 mm. wide: in body cavity of *Remora remora* *Distomum lageniforme* Linton (38)

Body elliptical, without spines; acetabulum larger than mouth; testes in same transverse plane near it; ovary in front of testes; intestinal cœca long; 1.25-6 mm. long, 0.7-2.6 mm. wide: in intestine of *Spheroides maculatus* *Distomum vibex* Linton (39)

Body wide and thick, without spines, bluntly rounded at both ends; acetabulum very large; œsophagus short, intestinal cœca long; testes and ovary close together in hinder part of body, the latter in front of former; uterus voluminous, filling body back of acetabulum; genital pore to right of pharynx; 2.75 mm. long, 1.4 mm. wide: in intestine of tilefish

Distomum fecundum Linton (39)

Body broad, spiny; acetabulum small, in anterior half of body; œsophagus short, intestinal cœca long; testes behind ovary, side by side; genital pore to left of pharynx; 0.7-1.3 mm. long, 0.4-0.64 mm. wide: in intestine of white perch *Distomum areolatum* (R.) Linton (39)

"Head compressed oval, convex anteriorly; mouth minute, not bordered. Body compressed oblong oval. Ventral acetabulum immersed between body and head. Length $2\frac{1}{2}$ lines, breadth $\frac{2}{3}$ of a line." From the intestine of *Rusticola minor*

Distomum (Clinostomum) dubium Leidy (21, 6)

"Body elongated, sublinear, depressed, unarmed, transversely rugose, posteriorly attenuate. For about 6.5 mm. back of the ventral sucker the body was filled with the voluminous folds of the uterus"; 20 mm. long, 3.2 mm. wide: in stomach of *Raja lævis*

Distomum veliporum (Creplin) Linton (38)

Body cylindrical, posterior portion larger than anterior; testes side by side, immediately behind acetabulum; 18 mm. long, 4.5 mm. wide: in stomach of swordfish *Distomum clavatum* (R.) (21, 38)

PARASITIC IN MOLLUSKS.

Body oval; acetabulum large, in center of body; intestine convoluted, passing to extremity of body; genital orifice halfway between acetabulum and hinder extremity of body; length $\frac{1}{2}$ line, breadth $\frac{1}{4}$ line: in pericardium of *Helix alternata* and *H. albolabris* (intermediate host)

Distomum helicis Leidy (19, 21)

= *Distomum vagans* Leidy (18)

Body fusiform; suckers large; acetabulum near the middle of the body; oral sucker "with a style inserted in the upper lip"; 0.2 mm. long, .08 mm. wide: in liver of *Ilyanassa obsolata* *Distomum lasium* Leidy (32)

PARASITIC IN CRUSTACEANS.

Body cylindrical; acetabulum larger than oral sucker; 1.25 mm. long; 0.4 mm. wide; in *Apus lucasani* . . . *Distomum apodis* Packard (75)

Body clavate, with a long, narrow tail (a cercaria); 0.25–0.4 mm. long: in muscles, liver, and intestine of Planorbis and Limnæa

Distomum ascoideum Leidy (24)

GENUS SCHISTOSOMA.

Male 4–14 mm. long, 1 mm. wide; female 13–20 mm. long, 0.28 mm. wide: in blood of man and cattle (?)

S. hæmatobium Billh. (Fig. 107) (85)

GENUS KÖLLIKERIA.

Longer diameter of reniform portion 1.74 mm., shorter diameter 1.09 mm., diameter of neck 0.13 mm.: in cysts in intestinal wall of Spanish mackerel *K. filicollis* R. (Fig. 108) (40)

GENUS DIPLOSTOMUM.

- a*₁. Acetabulum and oral sucker small; special organ of attachment of a large cavity at bottom of a conical projection just back of acetabulum, in the center of which is a short canal leading to the cavity, 3-4 mm. long: in intestine of *Strix nivea* et al.
D. grande Dies. (23, 80)
- a*₂. Special organ of attachment open; acetabulum and oral sucker small; 1 mm. long, 0.35 mm. wide; a larval form found in cysts in liver of *Pomotis vulgaris* et al. . . . *D. cuticola* Dies. (21, 38, 80)
- a*₃. Acetabulum large; oral sucker very small; anterior portion of body longer than hinder portion and not sharply separated from it; special organ of attachment an elliptical depression; 3.5-4.5 mm. long: in intestine of alligator *D. pseudostomum* Will.-S. (96)

GENUS POLYCOTYLE.

- Oral and ventral suckers small; 14 mid-dorsal suckers; 4.5 mm. long: in intestine of alligator *P. ornata* Will.-S. (Fig. 110) (96)

GENUS HOLOSTOMUM.

- a*₁. Body spinose, "divided by a constriction at the anterior third."
 "Head ovoidal, mouth terminal, round, opening into a cup-shaped pharynx"; 3.2 mm. long, 0.8 mm. wide: in intestine of *Rana pipiens*
H. nitidum Leidy (21)
- a*₂. Body not spinose; ventral sucker twice as large as oral sucker; ventral projection slit longitudinally into several parts and not extending beyond cup; 4-5 mm. long: in intestine of *Ardea herodias*
H. cornu Nitzsch (21, 80)
- a*₃. Anterior part of body subglobose, variable, aperture transverse; posterior cylindrical; reproductive aperture terminal, surrounded by a muscular border and with a central conical protractile part; 3 mm. long, 0.8 mm. wide: in intestine of *Circus cyaneus*
H. variabile Nitzsch (Fig. 113) (36)

GENUS GASTEROSTOMUM.

- a*₁. Body elliptical; mouth in center of body; 4-6 mm. long: in pyloric appendages of *Cottus scorpius* . . *G. armatum* Mol. (Fig. 114) (33)
- a*₂. Body ovate, being wider anteriorly; mouth towards anterior end; 1.9-2.7 mm. long, 0.92-1 mm. wide: in intestine of *Lobotes surinamensis*
Monostomum orbiculare (R.) Linton (38)
 = *G. ovatum* Linton (39)
- a*₃. Body elongate; mouth towards anterior end; 1.28-2.7 mm. long, 0.21 mm. wide: in intestine of *Sarda sarda*
G. arcuatum Linton (39, 40)

SUBFAMILY PRONOCEPHALINÆ.

Body elongate, lateral margins parallel; reniform projection at anterior end; intestinal cœca long and serpentine; testes lobate at hinder end; 18–25 mm. long, 3 mm. wide: in intestine of *Spargus coriacea*

Monostomum renicapite Leidy (21, 8)

GENUS OPISTHOTREMA.

Body broad, sagittate; testes small, lobate, in same transverse plane, laterad of intestinal cœca; ovary small, in front of testes; 10 mm. long; in *Manatus* *O. cochleare* Leuck. (Fig. 118) (80)

GENUS CYCLOCÆLUM.

Body elongate, attenuate anteriorly; 18 mm. long: in thoracic cavity of *Gallinago et al.* *C. mutabile* Zed. (Fig. 119) (26, 80)

GENUS NOTOCOTYLUS.

Body elongate, elliptical; testes in hinder end of body; 7 mm. long: in intestine of *Somateria mollissima et al.*

N. verrucosus Fröh. (Fig. 124) (33)

MONOSTOMIDS OF UNCERTAIN LOCATION IN THE SYSTEM.

Body spatulate, broader posteriorly; oral sucker small; intestinal cœca long; 12 mm. long, 2 mm. wide: in bile ducts of muskrat

Monostomum affine Leidy (23)

Body elongate, elliptical, obtusely angular in front, obtusely rounded behind; 12 mm. long, 2 mm. wide: in stomach of jewfish (*Megalops thrissoides*) *Monostomum obscurum* Leidy (27)

Body flat, oblong ovate, narrowing anteriorly, obtuse posteriorly; 6 mm. long, 1 mm. wide: in fresh-water fish

Monostomum spatulatum Leidy (23)

Body ovoidal, anteriorly broad; 2 mm. long, 1 mm. wide: in body cavity of *Rana pipiens* *Monostomum ornatum* Leidy (21)

Body elongate, posterior quarter slightly broader; œsophagus very long; intestinal cœca short; genital pore at end of œsophagus in hinder half of body; 1.4 mm. long, .24 mm. wide: encapsuled under skin of *Siren lacertina*

Monostomum aspersum Vail. (80)

Body ovate, spiny; 8 testes, 4 on each side; ovary lobate in front of them; uterus voluminous; 2.3 mm. long: in *Opsanus tau*

Monostomum vinal-edwardsii Linton (40)

Body sagittate; hinder end truncated or concave; testes side by side, at extreme hinder end; ovary lobate, near center of body; 5 mm. long: in swimming bladder of catfish . . . *Monostomum amiuri* Safford (79)

SELECTED BIBLIOGRAPHY.

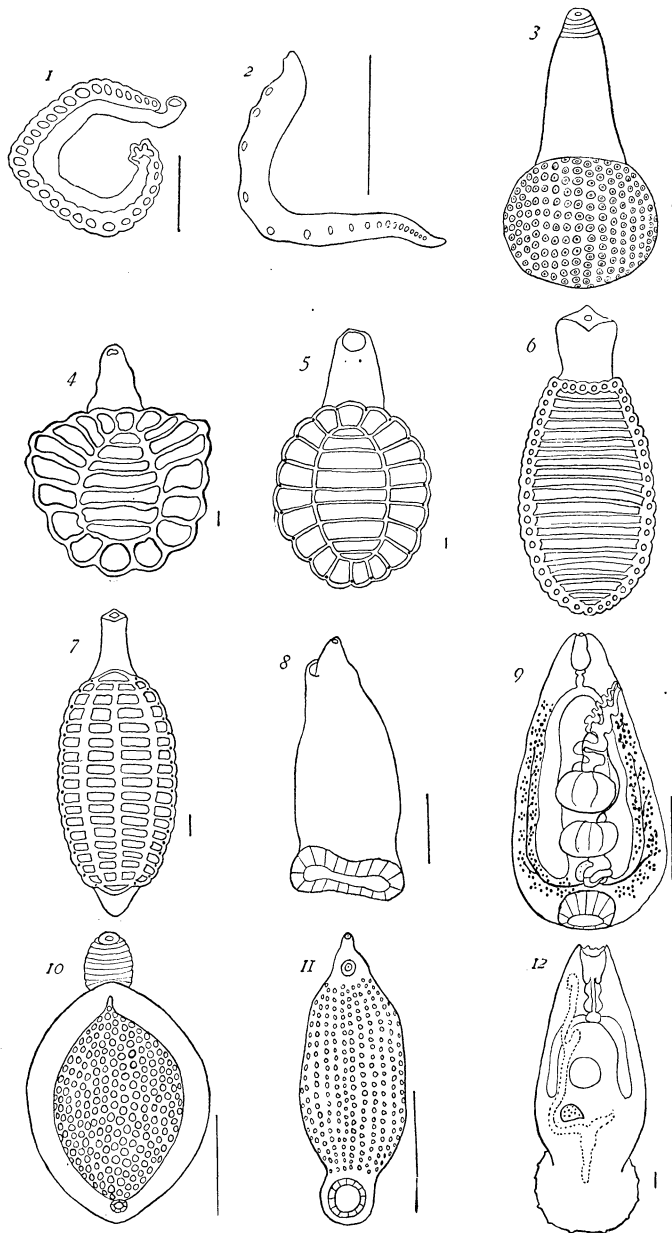
1. BENHAM, W. B. A Treatise on Zoölogy. Edited by E. Ray Lankester. Pt. iv, The Platyhelminia, etc. 1901.
2. BENSLEY, R. R. Two Forms of *Distomum cygnoides*. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxi, p. 326. 1897.
3. BRAUN, M. Plathelminthes: I. Trematodes. *Bronn's Klassen u. Ordnungen d. Thierreichs*. Bd. iv, pp. 306-924. 1892-93.
4. BRAUN, M. Ueber *Campula oblonga* Cobb. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxviii, p. 249. 1900.
5. BRAUN, M. Einige Bemerkungen über die Fascioliden der Chiroptera. *Zool. Anzeiger*. Bd. xxiii, p. 387. 1900.
6. BRAUN, M. Die Arten der Gattung *Clinostomen* Leidy. *Zool. Jahrb.*, Abth. f. Syst., etc. Bd. xiv, Heft 1. 1900.
7. BRAUN, M. Zur Kenntniss der Trematoden der Säugethiere. *Zool. Jahrb.*, Abth. f. Syst., etc. Bd. xiv, Heft 4. 1901.
8. BRAUN, M. Trematoden der Chelonier. *Mitt. aus d. Zool. Mus. in Berlin*. Bd. ii, p. 5. 1901.
9. BRAUN, M. Zur Revision der Trematoden der Vögel. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxix, pp. 560, 941. 1901.
10. BRAUN, M. Zur Verständigung über die Gültigkeit einiger Namen von Fascioliden-Gattungen. *Zool. Anzeiger*. Bd. xxiv, p. 55. 1901.
11. FISCHÖDER, F. Die Paramphistomiden der Säugethiere. *Zool. Anzeiger*. Bd. xxiv, p. 646. 1901.
12. HEIDER, K. Ueber *Braunina*, etc. *Verh. d. Zool. Ges. Leipzig*. Bd. x, p. 14. 1900.
13. JACOBY, A. Beiträge zur Kenntniss einiger Distomen. *Arch. f. Naturg.* 66. Jahrg. 1900.
14. JÄGERSKIÖLD, L. A. Ueber *Monostomum lacteum* n. sp. *Festschrift f. Lilljeborg*. 1896, p. 167.
15. JÄGERSKIÖLD, L. A. *Levinsenia* (*Distomum*) *pygmæa* Lev., etc. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxvii, p. 732. 1900.
16. KELLY, H. M. A Statistical Study of the Parasites of the Unionidæ. *Bull. Ill. State Lab. Nat. Hist.* Vol. v. 1899.
17. KOFOID, C. A. On the Specific Identity of *Cotylaspis insignis* Leidy and *Platyaspis anodontæ* Osborn. *Zool. Bull.* Vol. ii, p. 179. 1899.
18. LEIDY, J. *Journ. Acad. Nat. Sci.* Vol. i, n.s., p. 303. 1847.
19. LEIDY, J. On Entozoa found in the Pericardium of *Helix alternata*. *Proc. Acad. Nat. Sci. Phila.* 1847, p. 220.
20. LEIDY, J. Helminthological Contributions. *Proc. Acad. Nat. Sci. Phila.* Vol. v, pp. 205, 224. 1851.
21. LEIDY, J. A Synopsis of Entozoa, etc. *Proc. Acad. Nat. Sci. Phila.* 1856, p. 42.

22. LEIDY, J. Observations on Entozoa in Naiades. *Proc. Acad. Nat. Sci. Phila.* 1857, p. 18.
23. LEIDY, J. Contributions to Helminthology. *Proc. Acad. Nat. Sci. Phila.* 1858, p. 110.
24. LEIDY, J. On Flukes infesting Mollusks. *Proc. Acad. Nat. Sci. Phila.* 1877, p. 200.
25. LEIDY, J. Distoma and Filariæ. *Proc. Acad. Nat. Sci. Phila.* 1884, p. 47.
26. LEIDY, J. On Some Parasitic Worms of Birds. *Proc. Acad. Nat. Sci. Phila.* 1885, p. 9.
27. LEIDY, J. Notes on Some Parasitic Worms. *Proc. Acad. Nat. Sci. Phila.* 1887, p. 24.
28. LEIDY, J. Trematodes of the Muskrat. *Proc. Acad. Nat. Sci. Phila.* 1888, p. 126.
29. LEIDY, J. Entozoa of the Terrapin. *Proc. Acad. Nat. Sci. Phila.* 1888, p. 127.
30. LEIDY, J. Parasites of the Rock Fish. *Proc. Acad. Nat. Sci. Phila.* 1888, p. 166.
31. LEIDY, J. Parasites of Mola rotunda. *Proc. Acad. Nat. Sci. Phila.* 1890, p. 282.
32. LEIDY, J. Notes of Entozoa. *Proc. Acad. Nat. Sci. Phila.* 1890, p. 413.
33. LEVINSEN, G. M. R. Bidrag til Kundskab om Grönlands Trematod-fauna. *Översigt Danske Vidensk. Selsk. Forhandl.* No. 1, p. 52. 1881.
34. LINTON, EDWIN. Notes on a Trematode from the White of a Newly Laid Hen's Egg. *Proc. U. S. Nat. Mus.* 1887, p. 387.
35. LINTON, EDWIN. Notes of Trematode Parasites in the Crayfish. *Amer. Nat.* Vol. xxvi, p. 69. 1892.
36. LINTON, EDWIN. Notes on Avian Entozoa. *Proc. U. S. Nat. Mus.* Vol. xv, p. 87. 1892.
37. LINTON, EDWIN. On Fish Entozoa from Yellowstone National Park. *Rep. of U. S. Com. of Fish and Fisheries for 1889 to 1891.* 1893, p. 545.
38. LINTON, EDWIN. Notes on Trematode Parasites of Fishes. *Proc. of U. S. Nat. Mus.* Vol. xx, p. 507. 1898.
39. LINTON, EDWIN. Fish Parasites collected at Woods Hole in 1898. *U. S. Fish Com. Bull. for 1899.* 1900, p. 267.
40. LINTON, EDWIN. Parasites of Fishes of the Woods Hole Region. *U. S. Fish Com. Bull. for 1899.* 1901, p. 405.
41. LOOSS, A. Ueber Amphistomum subclavatum R. *Festschrift R. Leuckart's.* 1892, p. 147.
42. LOOSS, A. Die Distomen unserer Fische und Frösche. *Bibl. Zool.* Heft 16. 1894.
43. LOOSS, A. Recherches sur la faune parasitaire de l'Égypte. Première Partie. *Mém. Inst. Égyptien.* Tome iii. Caïre, 1896.

44. LOOSS, A. Weitere Beiträge zur Kenntniss der Trematoden-Fauna Aegyptens, etc. *Zool. Jahrb.*, Abth. f. Syst., etc. Bd. xii, p. 521. 1899.
45. LOOSS, A. Nachträgliche Bemerkungen zu den Namen der von mir vorgeschlagenen Distomidengattungen. *Zool. Anzeiger*. Bd. xxiii, p. 601. 1900.
46. LOOSS, A. Natura doceri, etc. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxix, p. 191. 1901.
47. LOOSS, A. Ueber einige Distomen der Labriden des Triester Hafens. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxix, p. 398. 1901.
48. LOOSS, A. Ueber die Fasciolidengenera *Stephanochasmus*, *Acanthochasmus* und einige andere. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxix, p. 595. 1901.
49. LOOSS, A. Notizen zur Helminthologie Aegyptens. IV. Ueber Trematoden aus Seeschildkröten der aegyptischen Küsten. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxx, p. 555. 1901.
50. LÜHE, M. Zur Kenntniss einiger Distomen. *Zool. Anzeiger*. Bd. xxii, p. 524. 1899.
51. LÜHE, M. Ueber die Gattung *Podocotyle* (Duj.) Stoss. *Zool. Anzeiger*. Bd. xxiii, p. 487. 1900.
52. LÜHE, M. Ueber Distomen aus der Gallenblase von Mittelmeerfischen. *Zool. Anzeiger*. Bd. xxiii, p. 584. 1900.
53. LÜHE, M. Ueber einige Distomen aus Schlangen und Eidechsen. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxviii, p. 555. 1900.
54. LÜHE, M. Ueber *Monostomum orbiculare*. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxix, p. 49. 1901.
55. LÜHE, M. Ueber Hemiuriden. *Zool. Anzeiger*. Bd. xxiv, pp. 394, 473. 1901.
56. MACCALLUM, W. G. On the Species *Clinostomum heterostomum*. *Journ. of Morph.* Vol. xv, p. 697. 1899.
57. MONTICELLI, F. S. Osservazioni intorno ad alcune forme del genus *Apoblema* Duj. *Atti Accad. Sc. Torino*. Vol. xxvi, p. 495. 1891.
58. MONTICELLI, F. S. *Cotylogaster Michaelis* n. g., n. s., e revisione degli *Aspidobothridæ*. *Festschrift R. Leuckart's*. 1892, p. 168.
59. MONTICELLI, F. S. Studii sui Trematodi endoparassiti. Primo contributo di osservazioni sui Distomidi. *Zool. Jahrb.*, Suppl. Bd. iii, p. 139. 1893.
60. MÜHLING, P. Beiträge, etc. *Arch. f. Naturg.* 62. Jahrg. 1896, p. 244.
61. MÜHLING, P. Die Helminthen-Fauna d. Wirbelt. Ostpr. *Arch. f. Naturg.* 64. Jahrg. 1898, p. 1.
62. NICKERSON, W. S. On *Stichocotyle nephropis* Cunn., etc. *Zool. Jahrb.*, Abth. f. Syst., etc. Bd. viii, p. 447. 1894.
63. NICKERSON, W. S. On the Occurrence of *Distomum ovocaudatum* Vulpian in American Frogs. *Zool. Bull.* Vol. i, p. 261. 1898.

64. NICKERSON, W. S. Note on *Distomum arcanum* (n. sp.) in American frogs. *Amer. Nat.* Vol. xxxiv, p. 811. 1900.
65. NICKERSON, W. S. Description of *Cephalogonimus vesicaudus* sp. nov. *Science.* Vol. xv, p. 581. 1902.
66. NICKERSON, W. S. *Cotylogaster occidentalis* n. sp. and a revision of the Family Aspidobothridæ. *Zool. Jahrb.*, Abth. f. Morph., etc. Bd. xvi, p. 597. 1902.
67. OFENHEIM, E. VON. Ueber eine neue Distomidengattung. *Zeitschr. f. Naturwissensch.* Bd. lxxiii. 1900.
68. ODHNER, TH. Ueber die geschlechtsreife Form von *Stichocotyle nephropis* Cunn. *Zool. Anzeiger.* Bd. xxi, p. 500. 1898.
69. ODHNER, TH. *Gymnophallus*, eine neue Gattung von Vogeldistomen. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxviii, p. 13. 1900.
70. ODHNER, TH. Mittheilungen zur Kenntniss der Distomen. *Centralbl. f. Bak.*, etc. I. Abth., Bd. xxxi, Nos. 2, 4. 1902.
71. ODHNER, TH. Trematoden aus Reptilien, etc. *Öfver-af Kongl. Vetenskaps-Acad. Förhand.* No. 1, p. 19. 1902.
72. OLSSON, P. Bidrag till Skandinaviens Helminthfauna, II. *Kongl. Sven. Vet. Akad. Hand.* Bd. xxv, p. 3. 1893.
73. OSBORN, H. L. Observations on the Anatomy of a Species of *Platyaspis* found Parasitic on the Unionidæ of Lake Chautauqua. *Zool. Bull.* Vol. ii, p. 55. 1898.
74. OSBORN, H. L. Notes on the Trematodes of Lake Chautauqua, N.Y. *Science.* Vol. xv, p. 573. 1902.
75. PACKARD, A. S. A New *Distomum* in the Egg Sacs of *Apus*. *Amer. Nat.* Vol. xvi, p. 142. 1882.
76. PRATT, H. S. A Contribution to the Life-History and Anatomy of the Appendiculate Distomes. *Zool. Jahrb.*, Abth. f. Anat., etc. Bd. xi. 1898.
77. PRATT, H. S. Descriptions of Four Distomes. *Mark Anniversary Volume.* 1902.
78. STAFFORD, J. Anatomical Structure of *Aspidogaster conchicola*. *Zool. Jahrb.*, Abth. f. Anat., etc. Bd. ix. 1896.
79. STAFFORD, J. Some Undescribed Trematodes. *Zool. Jahrb.*, Abth. f. Syst., etc. Bd. xiii, p. 399. 1900.
80. STILES, C. W., and HASSALL, A. A Preliminary Catalogue of the Parasites contained in the United States Army Medical Museum, Biological Department of the University of Pennsylvania (Coll. Leidy) and in Coll. Stiles and Coll. Hassall. *Veterinary Magazine.* April, 1894, p. 245; and May, 1894, p. 331.
81. STILES, C. W., and HASSALL, A. Notes on Parasites, 21. A New Species of Fluke (*Distoma complexum*), etc. *Veterinary Magazine.* June, 1894, p. 413.
82. STILES, C. W., and HASSALL, A. Notes on Parasites, 29 and 30. A New Species of Intestinal Fluke (*Distoma tricolor*), etc. *Veterinary Magazine.* November, 1894, p. 729.

83. STILES, C. W., and HASSALL, A. The Anatomy of the Large American Fluke, etc. *The Journal of Comparative Medicine and Veterinary Archives*. Vol. xv (1894), pp. 161, 225, 299, 407, 457—vol. xvi (1895), pp. 139, 213, 277.
84. STILES, C. W., and HASSALL, A. Notes on Parasites, 42-46. Comparison of the Type of *Distomum longissimum*, etc. *Veterinary Magazine*. March, 1896, p. 151.
85. STILES, C. W., and HASSALL, A. The Inspection of Meats for Animal Parasites. *Bull. 19, Bureau of An. Industry*, Dep't of Agr. 1898.
86. STILES, C. W., and HASSALL, A. Notes on Parasites, 48. An Inventory of the Genera and Subgenera of the Trematode Family Fasciolidæ. *Arch. d. Paras.* Vol. i, p. 81. 1898.
87. STILES, C. W., and HASSALL, A. Notes on Parasites, 50, 51, 52. The Lung Fluke (*Paragonimus westermanni*) in Swine, etc. *Sixteenth An. Rep. Bur. An. Industry*. 1899, p. 560.
88. STOSSICH, M. Branidi elmintol. tergest, II. *Boll. Soc. Adriat.* Vol. ix Estr., p. 2. 1885.
89. STOSSICH, M. Elminti trovati in un *Orthagoricus mola*. *Boll. Soc. Adriat.* Vol. xvii, Estr., p. 4. 1896.
90. VAILLANT, L. Sur quelques helminthes de la sirène lacertine. *Annal. d. Sci. nat.*, Sér. 4, Zool. Tome xix, p. 347. 1863.
91. WAGENER, G. Ueber *Distomum appendiculatum* R. *Arch. f. Naturg.* 26. Jahrg. Bd. i, p. 165. 1860.
92. WARD, H. B. On the Parasites of the Lake Fish. I. Notes on the Structure and Life History of *Distoma opacum* n. sp. *Proc. Amer. Micr. Soc.* Vol. xv, p. 173. 1894.
93. WARD, H. B. The Parasitic Worms of Man and the Domestic Animals. *Rep. for 1894, Neb. State Board Agr.* 1895, p. 225.
94. WARD, H. B. Notes on the Parasites of the Lake Fish. III. On the Structure of the Copulatory Organs in *Microphallus* nov. gen. *Studies from the Zool. Lab. Univ. of Neb.* 1901, p. 175.
95. WEST, G. S. A New Species of *Distomum*. *Journ. Linn. Soc.* Vol. xxv, p. 322. 1895.
96. WILLEMOES-SUHM, R. VON. Ueber einige Trematoden, etc. *Zeitschr. f. wiss. Zool.* Bd. xxi, p. 177. 1871.
97. WRIGHT, R. R. Contributions to American Helminthology. *Journ. Proc. Canad. Instit.* Vol. i, n.s., p. 54. 1879.
98. WRIGHT, R. R. Trematode Parasites in American Crayfish. *Amer. Nat.* Vol. xviii, p. 429. 1884.



In these figures the ovary, when present, is indicated by being dotted; the receptaculum seminis, by being crossed by parallel lines; the yolk glands, by being solid black. The testes, intestine, and other organs are left white.

FIG. 1. *Macraspis elegans* Olss., after Monticelli (58). 2. *Stichocotyle nephropis* Cunn., after Nickerson (62). 3. *Aspidocotylus mutabilis* Dies., after Dörsing from Bronn (3). 4. *Platyaspis lenoiri* Poir., after Poirier from Bronn (3). 5. *Cotylaspis insignis* Leidy, altered from Osborn (73). 6. *Cotylogaster michaeli* Mont., after Monticelli (58). 7. *Aspidogaster conchiola* v. Baer, after Monticelli (58). 8. *Gastrothylax cobboldii* Poir., after Poirier from Bronn (3). 9. *Paramphistomum cervi* Zed., after Laurer from Bronn (3). 10. *Gastrodiscus polymastus* Leuck., after Lejtényi from Bronn (3). 11. *Homalogaster paloniz* Poir., after Poirier from Bronn (3). 12. *Diplodiscus subclavatus* Goeze, after Walter from Bronn (3).

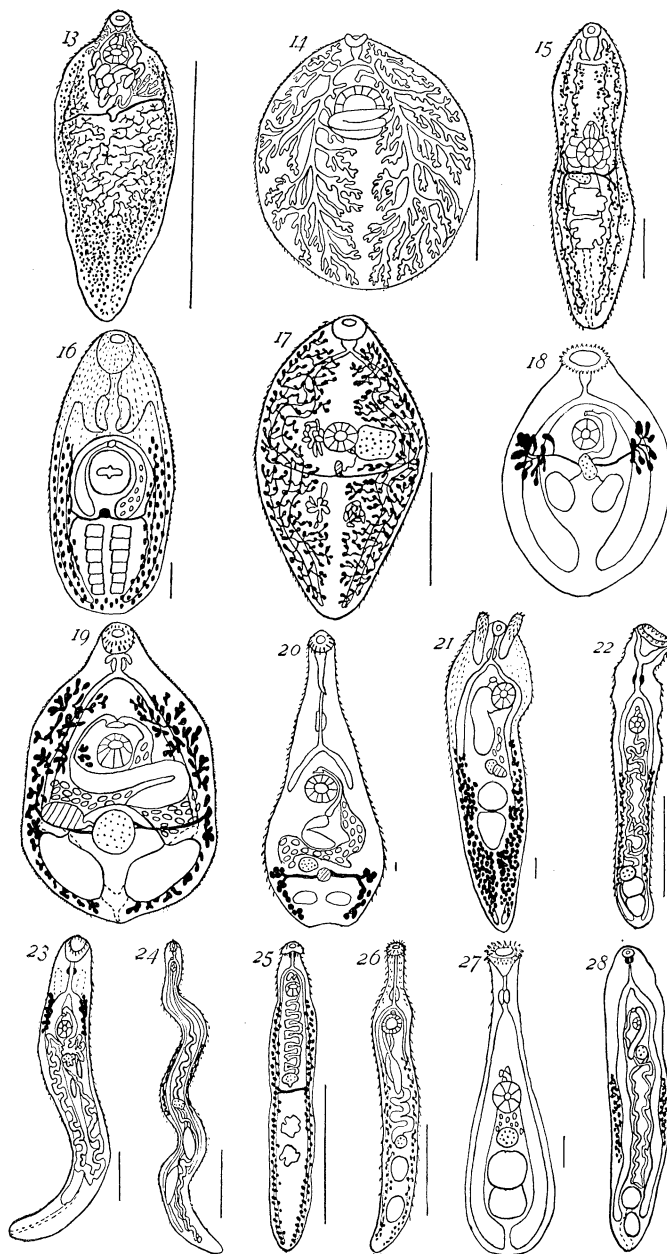


FIG. 13. *Fasciola hepatica* L., after Stiles (83). 14. *Fasciolopsis jacksoni* Cob., after Stiles (83). 15. *Campula palliata* Lss., after Looss from Stiles (83). 16. *Pleorchis polyorchis* Stoss., after Stossich from Braun (3). 17. *Paragonimus westermani* Kerb., after Ward (93). 18. *Anoikostoma coronatum* Wag., after Stossich (88). 19. *Centrocestus cuspidatus* Lss., after Looss (43). 20. *Ascocotyle minuta* Lss., after Looss (44). 21. *Rhopalias horridus* Dies., after Braun (7). 22. *Acanthochasmus scyphocephalus* Brn., after Braun (8). 23. *Anisocœlium capitellatum* R., after Looss (48). 24. *Anisogaster fallax* R., after Looss (48). 25. *Echinostoma echinatum* Zed., after Looss (44). 26. *Stephanochasmus cesticillus* Mol., after Looss (44). 27. *Dihemistephanus lydiae* Stoss., after Stossich and Looss (89, 44). 28. *Telorchis parvus* Brn., after Braun (8).

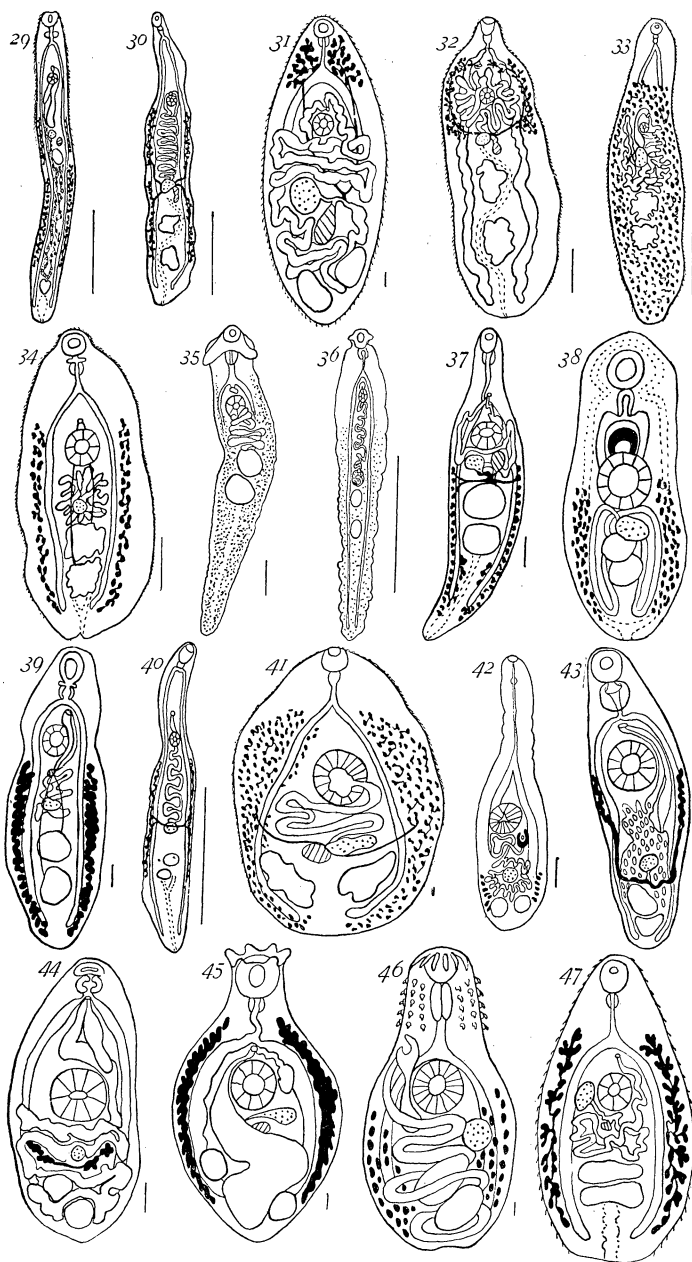


FIG. 29. *Orchidasmus amphiorchis* Brn., after Braun (8). 30. *Opisthorchis pseudofelineus* Ward, after Ward (93). 31. *Holometra exigua* Mühl., after Looss (44). 32. *Metorchis complexus* S. et H., after Stiles (81). 33. *Omphalometra flexuosa* R., after Mühling (60). 34. *Cathamasia hians* R., after Mühling (60). 35. *Calycodes anthos* Brn., after Braun (8). 36. *Rhytidodes gelatinosus* R., after Braun (8). 37. *Allocreadium isoporum* Lss., after Looss (42). 38. *Ptychogonimus megastomus* R., after Jacoby (13). 39. *Psilostomum platyurum* Mühl., after Mühling (60). 40. *Azygia tereticollis* R., after van Beneden from Bronn (3). 41. *Cryptocotyle concava* Crep., after Mühling (61). 42. *Cotylogonimus persicus* Brn., after Braun (7). 43. *Philophthalmus palpalabrum* Lss., after Looss (44). 44. *Pygorchis affixus* Lss., after Looss (44). 45. *Bunodera nodulosa* Zed., after Looss (42). 46. *Tergestia acanthocephala* Stoss., after Stossich from Bronn (3). 47. *Opisthioglyphe endoloba* Duj., after Looss (42).

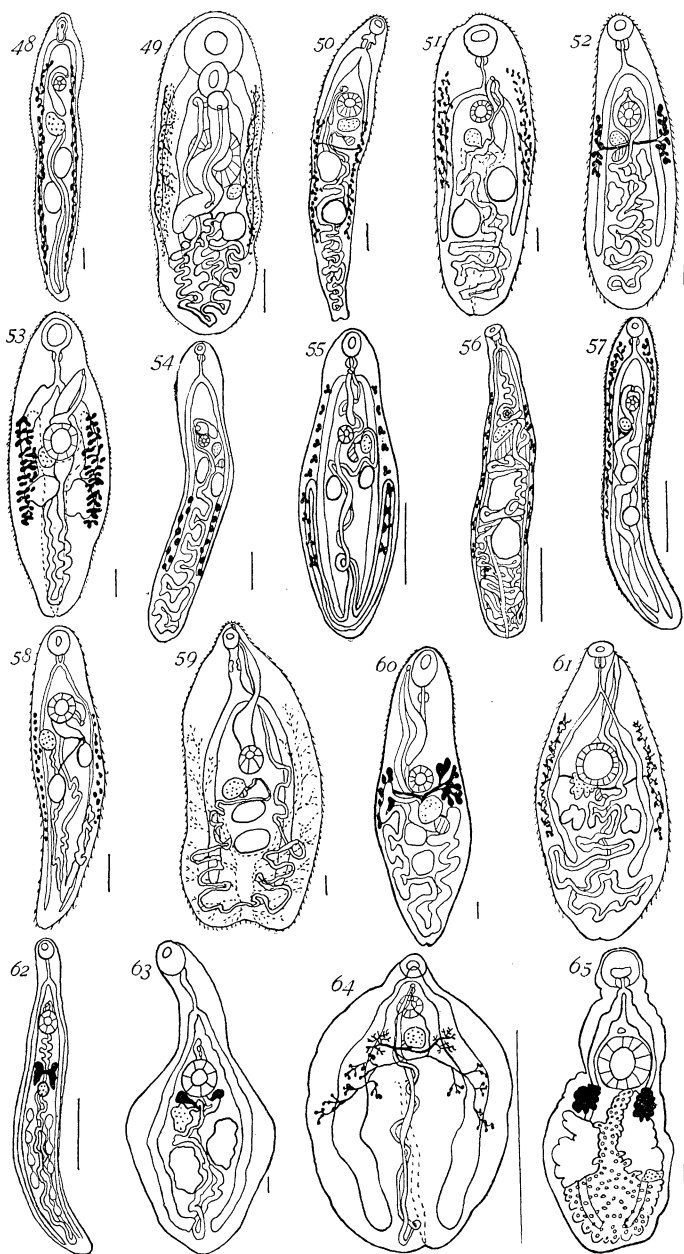


FIG. 48. *Plagiorchis cirratus* R., after Mühling (60). 49. *Pachypsolus irroratus* Brn., after Braun (8). 50. *Glossidium pedatum* Lss., after Looss (44). 51. *Astiotrema impletum* Lss., after Looss (44). 52. *Styphlodora serrata* Lss., after Looss (44). 53. *Renifer ellipticus* Pratt, after Pratt (77). 54. *Endiotrema megachondrum* Lss., after Looss (44). 55. *Hæmatolæchus variegatus* R., after Looss (42). 56. *Ostiolum formosum* Pratt, after Pratt (77). 57. *Haplometra cylindræa* Zed., after Looss (42). 58. *Opisthogonimus phylodryochus* West, after West (95). 59. *Cephalogonimus lenoiri* Poir., after Poirier from Bronn (3). 60. *Emoleptæa exilis* Lss., after Looss (44). 61. *Prosthogonimus ovatus* R., after Looss (44). 62. *Gordodera cygnoides* Zed., after Looss (42). 63. *Phylodistomonium folium* Oef., after Looss (42). 64. *Anaporrhutum albidum* Ofen., after Ofenheim (67). 65. *Plesiorchorus cymbiformis* Brn., after Braun (8).

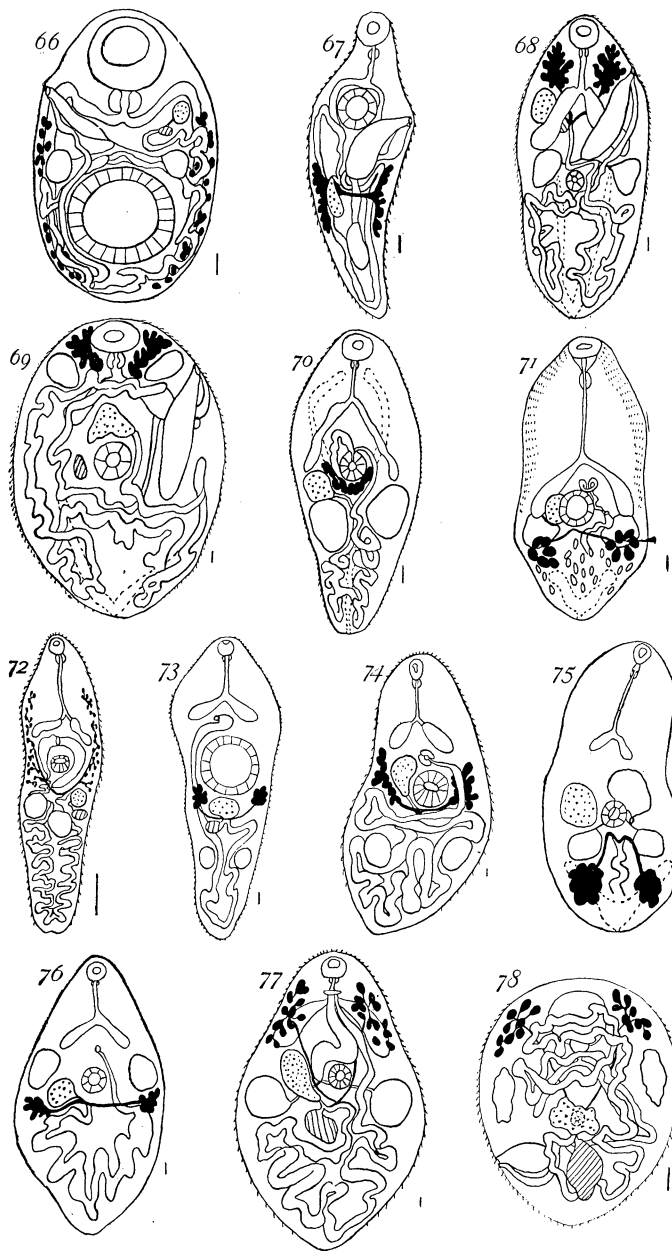


FIG. 66. *Stromylotrema singulare* Mol., after Looss (44). 67. *Asymphylodora perlata* v. Nord., after Looss (42). 68. *Pleurogenes medians* Olss., after Looss (42). 69. *Prosotocus confusus* Lss., after Looss (42). 70. *Gymnophallus deliciosus* Odhner, after Odhner (69). 71. *Levinseniella pygmaea* Lev., after Jägerskiöld (15). 72. *Cymatocarpus undulatus* Lss., after Looss (44). 73. *Brachycoelium heteroporum* Duj., after Brandes from Bronn (3). 74. *Pycnporus acetabulus* Lss., after Looss (44). 75. *Microphallus opacus* Ward, after Ward (92). 76. *Lecithodendrum ascidium* v. Ben., after Looss (42). 77. *Phaneroopsolus sigmoideus* Lss., after Looss (44). 78. *Brandesia turgidas* Brds., after Looss (44).

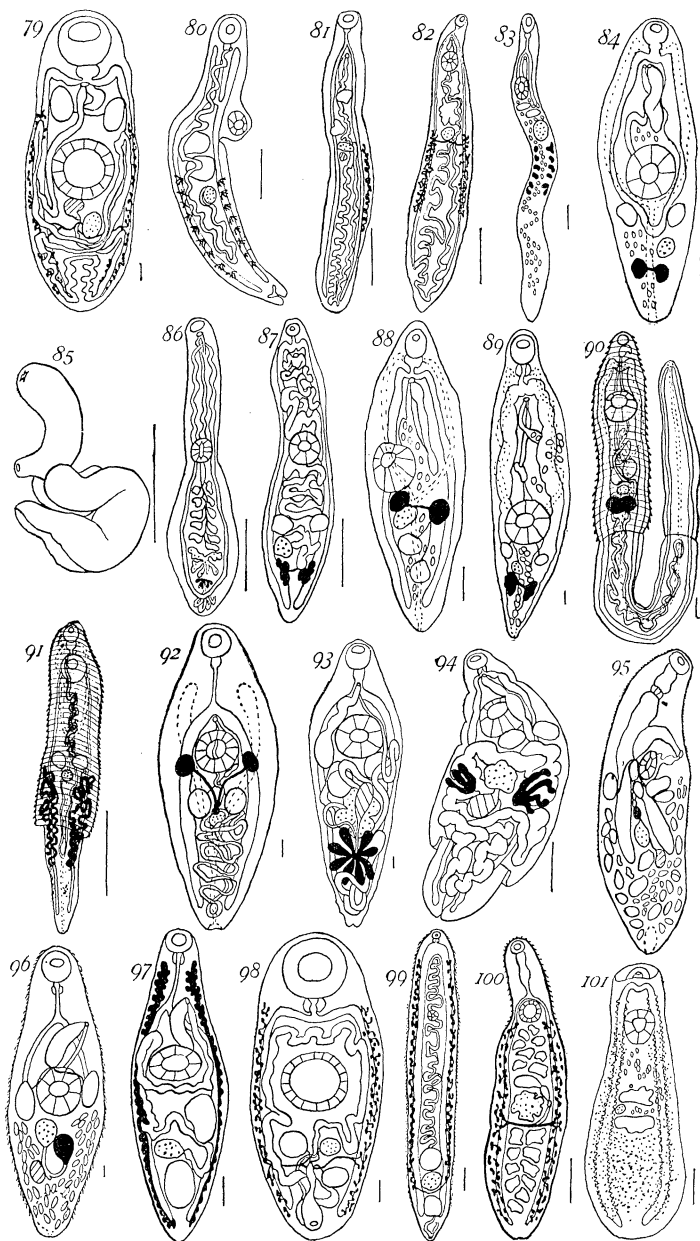


Fig. 79. *Eumegacetes triangularis* Dies., after Looss (44). 80. *Accacaelium contortum* R., after Monticelli (59). 81. *Athesmia heterolecithodes* Brn. 82. *Dicrocaelum lanceatum* S. et H., after Stiles (81). 83. *Lyperosomum strigosum* Brn., after Looss (44). 84. *Progonus muelleri* Lev., after Levensen (33). 85. *Otiotrema torsum* Setti, after Looss (44). 86. *Syncaelium ragazzi* Setti, after Looss (44). 87. *Halipegus ovocaudatus* Vul., after Looss (42). 88. *Liopyge bonnierii* Mont., after Monticelli (59). 89. *Derogenes minor* Lss., after Looss (47). 90. *Hemius appendiculatus* R., after Wagener, altered (91). 91. *Lecithocladium tornatum* R., after Wagener, altered (91). 92. *Pronopyge ocreata* R., after Monticelli (57). 93. *Lecithaster bothyophorus* Olss., after Levensen (33). 94. *Lecithochirium digitatum* Lss., after Looss (44). 95. *Zoogonus mirus* Lss., after Looss (47). 96. *Zoogonoides viviparus* Olss., after Odhner (70). 97. *Sparostoma globiporum* R., after Looss (42). 98. *Urogonimus insignis* Lss., after Looss (44). 99. *Urotocus rossitensis* Mühl., after Mühl. (61). 100. *Hapalotrema constrictum* Lear., after Looss (44). 101. *Clinostomum marginatum* R., after Braun (6).

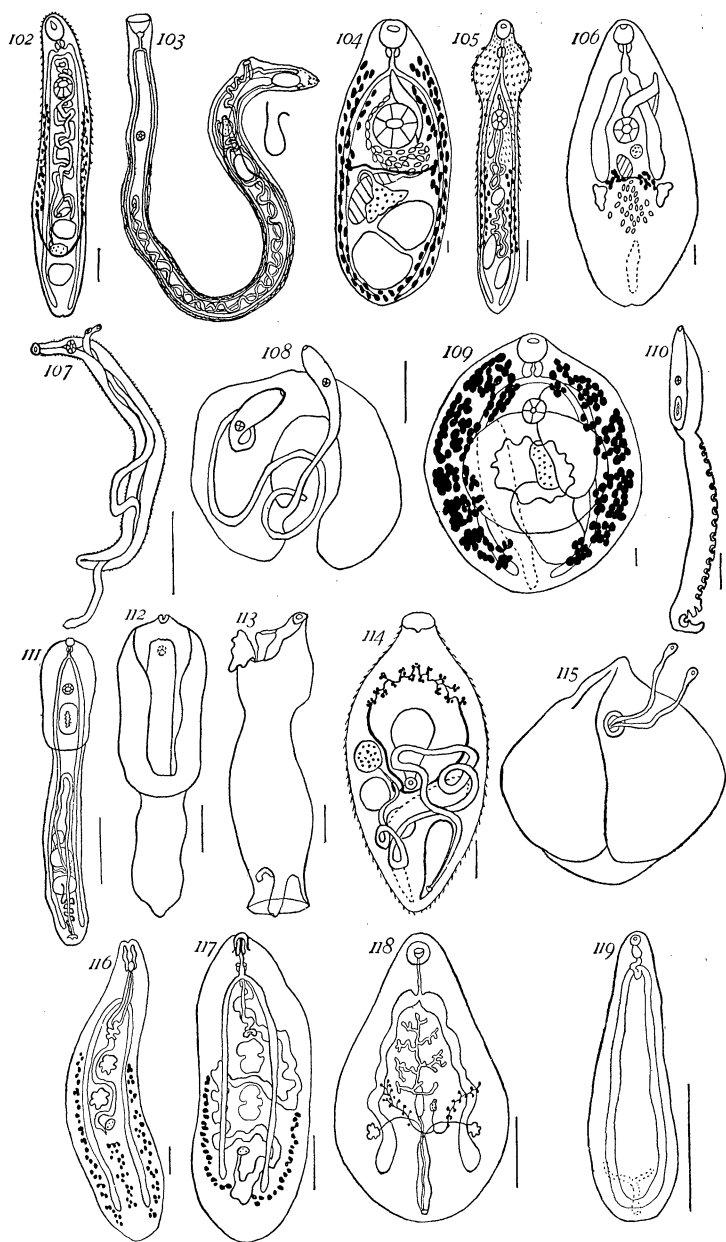


FIG. 102. *Harmostomum æquans* Lss., after Looss (44). 103. *Ityogonimus lorus* Duj., after Melnikow from Bronn (3). 104. *Halicometra pulchella* R., after Odhner (70). 105. *Dero-
pristis inflata* Mol., after Stossich from Bronn (3). 106. *Lepidophyllum steenstrupi* Odh.,
after Odhner (70). 107. *Schistosoma hæmatobium* Bilh., after Looss (43). 108. *Kœllikeria
filicollis* R., after Kœlliker from Benham (1). 109. *Cyathocotyle prussica* Mühl.,
after Mühlhling (60). 110. *Polycotyle ornata* Wilh.-S., after Benham (1). 111. *Diplostomum
longum* Brds., after Brandes from Bronn (3). 112. *Hemistomum clathratum* Dies.,
after Brandes from Benham (1). 113. *Holostomum variabile* Nitz., after Benham (1).
114. *Gasterostomum armatum* Mol., after Levinsen (33). 115. *Didymozoon thynni*
Tasch., after Wagener from Bronn (3). 116. *Microscaphidium reticulare* v. Ben., after
Looss (44). 117. *Deutobaris proteus* Brds., after Looss (44). 118. *Opisthotrema coch-
leare* Leuck., after Fischer from Bronn (3). 119. *Cyclocœlum mutabile* Zed., after v. Ben.
from Bronn (3).

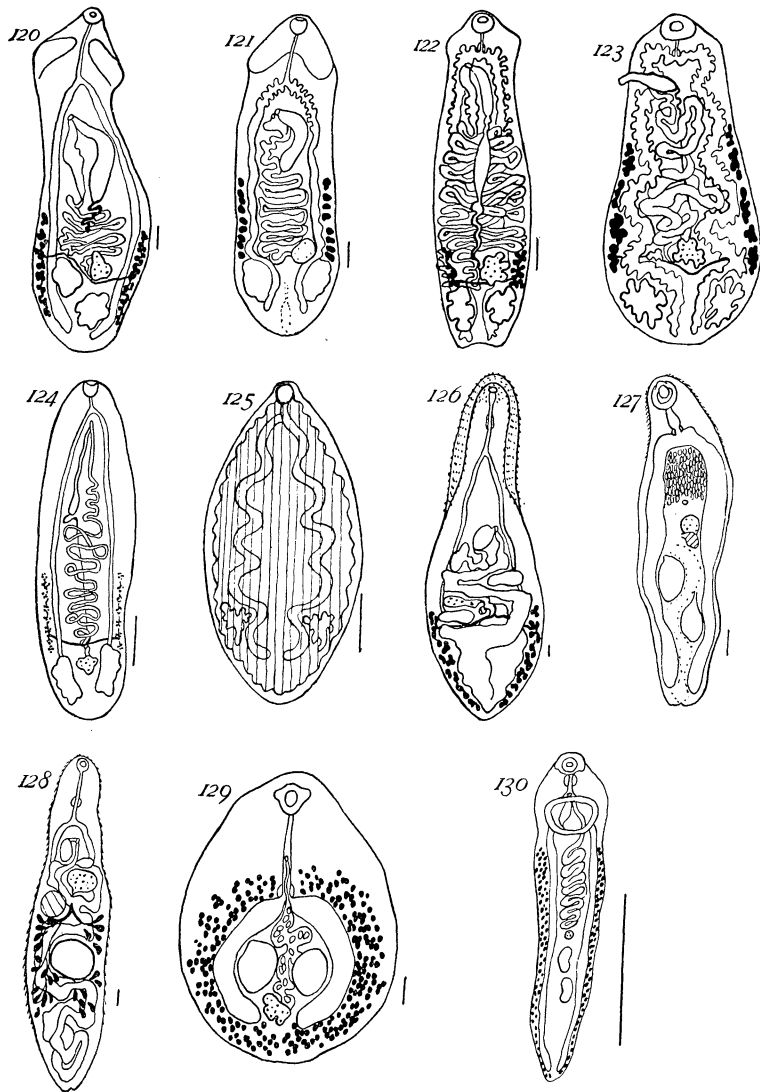


FIG. 120. *Pronocephalus obliquus* Lss., after Looss (44). 121. *Pleurogonius trigonocephalus* R., after Braun (8). 122. *Cricocephalus delitescens* Lss., after Looss (44). 123. *Pyelosomum cochlear* Lss., after Looss (44). 124. *Notocotylus verrucosus* Froeh., after Olsson (72). 125. *Ogmogaster plicata* Crep., after Jägerskiöld from Bronn (3). 126. *Stictodora sawakinensis* Lss., after Looss (44). 127. *Galactosomum lacteum* Jäg., after Jägerskiöld (14). 128. *Haplorchis cahirinus* Lss., after Looss (44). 129. *Mesometra orbicularis* R., after Lühse (54). 130. *Cotylotretus rugosus* Odh., after Odhner (71).